MIGRATION

ESTIMATES

- USER'S GUIDE -

Statistics Canada
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MIGRATION ESTIMATES FROM TAX RECORDS FOR CENSUS DIVISIONS/CENSUS METROPOLITAN AREAS

INTRODUCTION

This report presents migration estimates by census division (CD) and/or by census metropolitan area (CMA). Five-year comparisons as shown on our printed standard tables enable users to see the pattern of movement by Canadians, as well as immigration and emigration flows to and from Canada. The data tables are updated on a yearly basis. Migration estimates by CMA are available since 1992-93.

SECTION I -- THE DATA

Data Source

The migration estimates are derived from a comparison of addresses from individual income tax returns for two consecutive years. The period of reference extends from April of one year to April of the following year. A summary of the methodology is provided later in this document.

Timeliness

Migration estimates are available by census division from 1976-77 (and by census metropolitan area from 1992-93). Preliminary data on international migration and final data on internal migration are normally available from 15 to 18 months after the income tax deadline. Revised (final) data on international migration are produced 12 to 15 months after the preliminary data. Note that only the international portion of the migration figures is subject to revision.

An Outline of the Methodology

The data developed from the taxation records are estimates of migration flows between census divisions or census metropolitan areas by gender and broad age groups (under 18, 18 to 24, 25 to 44, 45 to 64 and 65 and over). Starting with 2001-02 migration, estimates are produced for 2001 census division boundaries. For 1996-97 through to 2000-01, estimates are produced for 1996 census division boundaries. From 1992-93 through to 1995-96, the data were produced for 1991 census division boundaries. For the 1986-87 through 1991-92 periods, the census division boundaries corresponded to those defined in the 1986 Census. For the years 1981-82 to 1985-86, the boundaries used are those defined in the 1981 Census and in the previous years the 1976 census boundaries are used.

Migration flows for census metropolitan areas are available since 1992-93, and the boundaries of the 26 CMAs are based on 1991 Census definitions for the period 1992-93 to 1995-96. CMA boundaries based on the 1996 Standard Geographic Coding (SGC) were used in the creation of 1996-97 to 2000-01 estimates. Beginning with 2001-02, CMA boundaries are based on 2001 SGC. The CMAs of Kingston (Ontario) and Abbotsford (British Columbia) were introduced with this new SGC system. Therefore, beginning with 2001-02, migration data are available for a total of 28 CMAs.

The development of these data involves four main steps:

1) Geocoding of tax records;
2) Estimation of non-filing dependents of taxfilers, by age group and gender;
3) Identification of the number, age group and gender of migrant taxfilers; and
4) Adjustment for the population not covered by the Canada Revenue Agency Taxation system.

Step 1 — Geocoding

The geographic coding of census divisions and census metropolitan areas on the tax records is done primarily on the basis of the postal code, which is part of the mailing address. In some cases, other pieces of information were used in place of a missing postal code. Since the 1989 tax files, over 99% of the records could be assigned a census division code.

Step 2 — Estimation of Dependents

Since the source file has no direct information on the number and characteristics of non-filing dependents, this information must be imputed. Up to the 1987-88 period, this was based on the relationship between the dollar value of the total personal exemptions claimed and the number of dependents. A reference table was established relating an estimate of the average number of dependents by age group and gender to filers in a given age-gender-marital status-total personal exemption class. This table was produced each year using a sample file of taxfilers containing information on the exact number of dependents and their relationship to the filer in addition to the characteristics of the filer. Other demographic information such as gender ratios and the age distributions of husbands and wives were also used to distribute dependents by age and gender.

The current system uses the estimation of taxfilers' dependents from the T1 family file (T1FF). The family system creates families by linking all filing family members together and estimates non-filing members from information on the taxfilers' returns,[1] based on such information as deductions/tax credits for dependents. For example, the family system imputes a non-filing spouse wherever a filer has declared him/herself married but was not linked with a filing spouse.[2]

Step 3 — Migrant Taxfilers and Dependents

The main source file used contains the basic demographic and geographic information on each taxfiler (and dependent) and covers approximately 96% of the total population. The migrant taxfilers are identified by comparing current and previous census divisions or census metropolitan areas of residence.

Taxfilers' non-filing dependents are assumed to have the same migration behaviour as that of the filer to whom they are assigned.

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[1] See report "Description of the Methodology Used to Create Migration Data from Tax Records" updated by Judy Reid, Small Area and Administrative Data Division: February 1998.

[2] See Lucaciu, Daniela and Harris, Shelley, "Overview of T1FF Processing", SAADD: 1999.

Step 4 — Coverage Correction

The final step in the estimation process is an adjustment for coverage, done by age and gender at the census division/census metropolitan area level. Population estimates by CD/CMA are used to create coverage ratios. For migration estimates up to 2000-01, provincial adjustment ratios were used in place of the CD/CMA ratio in the few cases where coverage was abnormally high or low, Beginning with 2001-02 migration data, high and low coverage were identified with a new methodology and a Canadian adjustment ratio was used in place of the CD/CMA ratio.

The adjustment ratios are applied to the counts of out-migrants derived in Step 3 to obtain an estimate of total migration. The basic assumption is that the population not covered by the taxation system has the same migration rate as that covered by it.

The estimates of international migration are prorated to agree with provincial estimates provided by the Demography Division of Statistics Canada.

Data Quality

Based on a detailed evaluation of the estimates for the intercensal period of 1986-91, a number of observations can be made regarding migration estimates for Census divisions:

(a) Overall, the estimates of migration are of good quality. It is, however, difficult to make exact comparisons to other annual estimates of migration flows at the census division level. The estimates of net migration have been used to produce population estimates and these have been compared to the 1991 Census counts. The average absolute difference for 1991 was 2.3%. In 12 of 182 cases (6%)[3] the deviation exceeded 5% and in 3 cases, the deviation exceeded 10% (this does not include Quebec census divisions). These deviations are smaller than those obtained from other estimation methodologies and indirectly indicate the quality of the net migration data. It has not been possible to do much evaluation of the flow data.

(B) In addition to the estimates of migration based on tax records, Demography Division of Statistics Canada also produces estimates of interprovincial migration which are based on Child Tax Benefit records. The concepts underlying these estimates differ from the concepts used in the tax-based estimates. More specifically, the Child Tax Benefit data estimates monthly moves while the tax data tracks annual moves.

No comparable study has yet been done to examine the CMA coverage.

[3] Montgomery, March 1993: p 15

Availability of Data

Migration estimates are available by census division from 1976-77, and by census metropolitan area from 1992-93.

For the 1976-81 period, no preliminary migration flows between census divisions were calculated. Adjustments were not made at the international level although evaluations indicated the estimates of international migration were too low.

For the period from 1981-82 to 1984-85, migration estimates from tax records were produced twice a year, the first time using a preliminary tax file from the Canada Revenue Agency (available with a 6-9 month time delay) and the second with a more complete tax file (available with a 12-15 month time delay). Because the differences between the two sets of estimates were not large, beginning with the 1985-86 estimates, only one series of estimates was produced. The final file has been used since 1985-86.

Beginning with the 1981-82 estimates, the data on immigration and emigration have been prorated to make them consistent with the most currently available estimates produced at the provincial level by Demography Division of Statistics Canada. Two data series are produced to accommodate data updating done by Demography Division.

1. *Preliminary Estimates* (15-18 month time lag). The international component is prorated to the preliminary estimates of international migration provided by Demography Division; and

2. *Revised (Final) Estimates* (27-33 month time lag). The international component is prorated to the final estimates of international migration provided by Demography Division, while the counts of internal migration remain unchanged.

Each of the above estimates is identified in tables by the letters "P" (preliminary) and "R" (revised - final).

SECTION II -- THE DATA TABLES

Number of Tables

There are five standard data tables. The first four tables provide a five-year comparison of migration while the fifth one is based on a two-year period:

Table A: By Province of Origin/Destination
Table B: By Age Group
Table C: By Type of Migration and Gender
Table D: Flows by Census division of Origin/Destination, or by CMA/non-CMA of Origin/Destination
Table E: Median Income of Migrant Taxfilers

Note: A five-year comparison is not always possible for census divisions due to boundary changes over time. This five-year comparison was not possible for Quebec nor for some census divisions in British Columbia due to major census division boundary changes beginning in 1992-93, and based on 1991 census divisions, and again in 1996-97 based on 1996 census divisions. For these areas, comparable data are provided according to the old boundaries up to and including 1991-92 or 1995-96, and according to the new boundaries since 1996-97.

Data Table Contents

Table A ─ By Census Division or Census Metropolitan Area of Origin and of Destination

Each page of this table highlights flows: in, out and net flows for a specific province, a specific census division (CD) or any one of the 28 census metropolitan areas (CMAs), including non-CMA areas for each province.

Provincial totals provided include intraprovincial migration.

Tables B and C ─ Age Group, Type of Migration, and Gender

Both Tables B and C list in, out and net migration for the highlighted CD or CMA for a five-year period. Table B shows migration by age group while Table C shows migration by type (interprovincial, intraprovincial and international) and by gender.

Provincial totals provided include intraprovincial migration.

Table D ─ Flows by Census Division/Census Metropolitan Area of Origin/Destination

Table D gives details of the flows for a particular CD or CMA. A list is given of the CDs or CMAs with which the selected CD or CMA exchanged any people. The flows are ranked in the table by net migration. The flows for the past five years are shown on the printed tables, though the ranking is according to the most recent period.

Table E – By Census Division/Census Metropolitan Area of Origin/Destination by Median Income of Migrant Taxfilers

For each CD or CMA, Table E gives details on the median income of migrant taxfilers. The first part of the table shows the number of taxfilers leaving their CD/CMA by province of destination, their median income for the year before the move and their median income for the year of the move. The second half of the table shows the number of taxfilers moving into the CD/CMA by province of origin, their median income for the year prior to the move and their median income in the year of the move. The table also provides a comparison of the migrant taxfilers' median income with the provincial and national figures.

SECTION III -- GLOSSARY OF TERMS

Age

Is calculated as of December 31 of the reference year (i.e., tax year minus year of birth).

Census division (CD)

Refers to the general term applying to counties, regional districts, regional municipalities and five other types of geographic areas made up of groups of census subdivisions. In Newfoundland, Manitoba, Saskatchewan and Alberta, the term describes areas that have been created by Statistics Canada in cooperation with the provinces as an equivalent for counties.

Census metropolitan area (CMA)

The general concept of census metropolitan areas (CMA) is one of a very large urban area together with adjacent urban and rural areas that have a high degree of economic and social integration with that urban area.

Dependent

For the purpose of these databanks, dependents are the non-filing members of a family. We do not attempt to measure dependency in any way, but are able to identify certain non-filing family members, and include these in the total counts of people in a given area.

Emigration

Movement from an area in Canada to another country.

Gross migration flow

Sum of the number of migrants between two geographic areas. It is obtained by adding the number of in-migrants to the number of out-migrants.

Index

Is a comparison of the variable for the given area with either the province (province = 100) or with Canada (Canada = 100).

Immigration

Movement to an area in Canada from another country.

In-migration

Movement to a census division or census metropolitan area from elsewhere inside or outside Canada.

Internal migration

Movement between two census divisions or census metropolitan areas within Canada. Internal migration is divided in two categories: interprovincial and intraprovincial migration.

International migration

Movement between an area in Canada and another country. International migration is divided in two categories: immigration and emigration.

Interprovincial migration

Movement between census divisions or census metropolitan areas located in two different provinces. The province of departure is the "province of origin" and the province of arrival is the "province of destination".

Intraprovincial migration

Movement between two census divisions or census metropolitan areas located within the same province. The CD/CMA of departure is the CD/CMA of "origin" and the CD/CMA of arrival is the CD/CMA of "destination".

Median

Is the middle number in a group of numbers. Where a median income, for example, is given as $26,000, it means that exactly half of the incomes reported are greater than or equal to $26,000, and that the other half are less than or equal to the median amount. Median incomes in the data tables are rounded to the nearest hundred dollars. Zero values are not included in the calculation of medians for individuals.

Migration

Movement between two geographic areas during the period covered by the estimates. Within Canada, the geographic area of reference is the census division or the census metropolitan area. Other countries are considered as one geographic area.

Net migration

Difference between the number of in-migrants and the number of out-migrants.

Out-migration

Movement out of a census division or census metropolitan area to elsewhere inside or outside Canada.

Taxfiler

Most taxfilers are people who filed a tax return for the reference year and were alive at the end of the year. Starting with the 1993 tax year, those taxfilers who died within the tax year and who had a non-filing spouse had their income and their filing status attributed to the surviving spouse.

Total Income

Note: this variable was revised over the years, as reflected in the comments below; data users who plan to compare current data to data from previous years should bear in mind these changes. Also, it should be noted that all income amounts are gross, with the exception of net rental income, net limited partnership income and all forms of net self-employment income.

Income reported by taxfilers from any of the following sources:

Labour income

Employment income

Wages/salaries/commissions

Other employment income as reported on line 104 of the tax form (tips, gratuities, royalties, etc.)

Net self-employment
Employment insurance (EI) benefits
Pension income
Old Age Security/net federal supplements (the latter including guaranteed income supplements and spouses' allowances since 1994)
Canada/Quebec Pension Plan
Superannuation and other (private) pensions
Federal Family Allowance benefits (up to and including 1992)
Quebec Family Allowance (beginning with 1994)
British Columbia Family Bonus (beginning with 1996)
New Brunswick Child Benefit Supplement (beginning with 1997)
Alberta Family Employment Tax Credit (beginning with 1997)
Northwest Territories Child Benefit (beginning with 1998)
Nova Scotia Child Tax Benefit (beginning with 1998)
Nunavut Child Benefit (beginning with 1998)
Ontario Child Care Supplement for Working Families (beginning with 1998)
Saskatchewan Child Benefit (beginning with 1998)
Newfoundland and Labrador Child Benefit (beginning with 1999)
Yukon Child Benefit (beginning with 1999)
Interest and other investment income
Dividend income
RRSP income (since 1994; previously in "other income" / since 1999; only taxfilers 65+)
Net limited partnership income (included in "other income")
Alimony (included in "other income")
Net rental income (included in "other income")
Income for non-filing spouses (since 1992; included in "other income")
Other incomes as reported on line 130 of the tax form (fellowships, bursaries, grants, etc.; included in "other income")
Federal sales tax (FST) credit (for 1989-1990 inclusive)
Goods and services tax (GST) credit (beginning in 1990)
Harmonized sales tax (HST) credit (beginning in 1997)
Child tax credit (up to and including 1992)
Canada Child Tax Benefit (starting with 1993)
Other non-taxable income (since 1990)
Workers' compensation payments (shown separately starting with 1994)
Social assistance payments (shown separately starting with 1994)
Guaranteed income supplements (included with net federal supplements since 1994; previously in "non-taxable income")
Spouses' allowances (included with net federal supplements since 1994; previously in "non-taxable income")
Provincial refundable tax credits in Manitoba, Ontario, Quebec and Saskatchewan (since 1990), British Columbia and the Northwest Territories (since 1993), Newfoundland and Nunavut (since 1997) and the Nova Scotia Taxpayer Refund Program (one-time payment in 2003).

Monies not included in income above are: veterans' disability and dependent pensioners' payments, war veterans' allowances, lottery winnings and capital gains.

SECTION IV – GEOGRAPHY

The data are available for census divisions and census metropolitan areas. The mailing address at the time of filing is the basis for the geographic information in the tables.

The following table shows the coded designators for each level of geography, as well as a brief description of each.

Level of Geography	Name	Description
41	Census Metropolitan Area	The general concept of a census metropolitan area (CMA) is one of a very large urban area, together with adjacent urban and rural areas that have a high degree of economic and social integration with that urban area. CMAs have an urban core population of at least 100,000, based on the previous census. There are 28 CMAs in the 2003 databanks: 001, St. John's, Newfoundland and Labrador 205, Halifax, Nova Scotia 310, Saint John, New Brunswick 408, Saguenay, Québec 421, Québec, Québec 433, Sherbrooke, Québec 442, Trois-Rivières, Québec 462, Montréal, Québec 505, Ottawa-Gatineau (Québec part) 505, Ottawa-Gatineau (Ontario part) 521, Kingston, Ontario 532, Oshawa, Ontario 535, Toronto, Ontario 537, Hamilton, Ontario 539, St-Catharines-Niagara, Ontario 541, Kitchener, Ontario 555, London, Ontario 559, Windsor, Ontario 580, Greater Sudbury, Ontario 595, Thunder Bay, Ontario 602, Winnipeg, Manitoba 705, Regina, Saskatchewan 725, Saskatoon, Saskatchewan 825, Calgary, Alberta 835, Edmonton, Alberta

Level of Geography	Name	Description
41	Census Metropolitan Area (cont'd)	932, Abbotsford, British Columbia 933, Vancouver, British Columbia 935, Victoria, British Columbia
21	Census Division	A census division (CD) is a group of neighbouring municipalities joined together for the purposes of regional planning and managing common services (such as police or ambulance services). A CD might correspond to a county, a regional municipality or a regional district. CDs are established under laws in effect in certain provinces and territories of Canada. In other provinces and territories where laws do not provide for such areas (Newfoundland, Manitoba, Saskatchewan and Alberta), Statistics Canada defines equivalent areas for statistical reporting purposes in cooperation with these provinces and territories. The 2003 databanks contain 288 areas coded as level of geography 21.

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LIST OF DATA PRODUCTS AVAILABLE

The Small Area and Administrative Data Division of Statistics Canada tabulates statistical data derived from administrative records - most notably, the taxfile. The resulting demographic and socio-economic databanks available are listed in the table below, along with their identifying product number and the usual release dates.

Product name	Product number	Release date
RRSP Contributors	17C0006	Fall
RRSP Contribution Limits (Room)	17C0011	Fall
Canadian Savers	17C0009	Fall
Canadian Investors	17C0007	Fall
Canadian Investment Income	17C0008	Fall
Canadian Taxfilers	17C0010	Fall
Canadian Capital Gains	17C0012	Fall
Charitable Donors	13C0014	Fall
Neighbourhood Income and Demographics	13C0015	Spring
Economic Dependency Profiles	13C0017	Spring
Labour Income Profiles	71C0018	Spring
Families	13C0016	Spring
Seniors	89C0022	Spring
Migration Estimates	91C0025	Fall